Abstract of the Disclosure

Alternating current with rectangular waves is supplied from an operating device to an ultra-high pressure discharge lamp in which located within a silica glass discharge vessel is a pair of opposed electrodes separated by a distance of less than or equal to 1.5 mm. A discharge vessel is filled with greater than or equal to 0.15 mg/mm^3 mercury and bromine in the range of 10^{-6} $\mu mol/mm^3$ to 10^{-2} $\mu mol/mm^3$. In the operating device, a multiplication device computes the discharge wattage supplied to the discharge lamp and controlled so that in the case of a reduction of the operating voltage of the discharge lamp the discharge wattage is reduced, and that in the case of an increase of the operating voltage of the discharge lamp the discharge wattage is increased.